

### ABSTRACT

A radio system includes a radio frequency (RF) integrated circuit (IC) and a baseband digital signal processing (DSP) IC. A serial digital interface couples data between the RF IC and the DSP IC to provide a high data rate and low noise. In one embodiment, the RF IC has a single bit sigma delta modulator to convert an analog signal into a serial digital bit stream, and a differential output driver to drive the serial digital bit stream as a differential data signal. In one embodiment, the DSP IC has a differential input receiver to receive the differential data signal and generate the serial digital bit stream therein, a decimator to lower the data rate of the serial digital bit stream and convert it into parallel digital data samples, and a demodulator to digitally demodulate the parallel digital data samples into data words for digital signal processing.